

CLAIMS:

1. A semiconductor device (201) comprising a functional device (207) characterized by an integral characterization unit (203) operable to provide characterization data for the device (201).
- 5 2. A semiconductor device (201) as claimed in claim 1, wherein the integral characterization unit (203) is operable to provide a control signal to control an operating parameter of the device (201).
3. A semiconductor device (201) as claimed in claim 2, wherein the integral
10 characterization unit (203) is operable to provide a control signal to control a voltage supply of the device (201).
4. A semiconductor device (201) as claimed in claims 2 or 3, wherein the integral
15 characterization unit (203) is operable to provide a control signal to control a clock signal of the device (201).
5. A semiconductor device (201) as claimed in any one of claims 1 to 4, wherein the functional device (207) is operable to receive test data.
- 20 6. A semiconductor device (201) as claimed in claim 5, wherein the functional device (207) is operable, in response to said test data, to produce a test response.
7. A semiconductor device (201) as claimed in claim 5 or 6, wherein the
25 functional device (207) is operable to receive a control signal from said integral characterization unit (207).
8. A semiconductor device (201) as claimed in claim 4, wherein the integral characterization unit (203) is operable to provide the clock signal externally to said device (201).

9. A semiconductor device (201) as claimed in any one of the preceding claims, comprising a test interface, and wherein the integral characterization unit (207) is operable to receive data through the test interface.
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10. A semiconductor device (201) as claimed in any one of the preceding claims further including software control means operable to provide control data to the integral characterization unit (207).
- 10 11. A semiconductor device (201) as claimed in any one of the preceding claims further including hardware control means operable to provide control data to the integral characterization unit (207).
- 15 12. A semiconductor device (201) as claimed in claim 10 or 11, wherein the control means is operable to provide control data to the integral characterization unit (207) through a test interface of the device (201).
- 20 13. A semiconductor device (301) as claimed in claim 5, further including built in test hardware (305) operable to provide test data to the functional device (303).
- 25 14. A semiconductor device (301) as claimed in claim 13, wherein the built in test hardware (305) is IEEE 1149.1 compliant.
- 30 15. A semiconductor device (301) as claimed in claim 13 or 14, comprising a test interface and wherein the built in test hardware (305) is operable to receive test data through a test interface of the device (301).
16. A semiconductor device (301) as claimed in any one of claims 13 to 15, wherein the built in test hardware (305) is operable, in response to said test data supplied to said functional device (303), to provide test response data.
17. A semiconductor device (301) as claimed in claim 16, wherein the built in test hardware (305) is operable to output said test response data from the device (301).

18. A semiconductor device (401) as claimed in any one of the preceding claims further including a memory module (413) which is operable to store characterization data of the device (401).
- 5 19. A semiconductor device (401) as claimed in any one of the preceding claims, further including a controller (411) which is operable to provide control data to the integral characterization unit (407).
20. A semiconductor device (401) as claimed in claim 19 when appended to claim
10 13, wherein the controller (411) is operable to provide control data to the built in test hardware.
21. A semiconductor device (401) as claimed in claim 19 when appended to claim
15 18, wherein the controller (411) is operable to communicate with the memory module (413).
22. A semiconductor device (401) as claimed in claim 19, wherein the controller (411) is operable to receive data over a test interface of the device (401).
23. A method of characterizing a semiconductor device (201) comprising a
20 functional device (207) characterized by providing an integral characterization unit (203) in the semiconductor device (201), and obtaining characterization data from the integral characterization unit (203).
24. A method as claimed in claim 23, further comprising providing a control
25 signal to control an operating parameter of the device (201).